SWIS # 48-AA-0002

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 97-145

WASTE DISCHARGE REQUIREMENTS
FOR
NORCAL WASTE DISPOSAL SYSTEMS, INC.
B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL FACILITY
CLASS II AND CLASS III LANDFILLS
SOLANO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The B&J Drop Box Sanitary Landfill facility is owned and operated by B&J Drop Box Corporation (hereafter Discharger), a subsidiary of Norcal Waste Systems, Inc.. The Discharger submitted a Report of Waste Discharge (RWD) on 21 March 1997 which requested revision of facility design specifications and monitoring program requirements.

2. The site comprises approximately 640 acres and is about eight miles east of Vacaville on Hay Road (Section 2, T5N, R1E, MDB&M), as shown in Attachment "A", a part of this Order. The Assessor's Parcel Numbers are 42-020-02, 42-020-06 and 42-020-28. The landfill serves a portion of Solano County and is planned, in the future, to serve other counties.

3. The facility was previously regulated by Waste Discharge Requirements (WDRs) Order No. 95-269, adopted by the Board on 8 December 1995.

WASTE MANAGEMENT UNITS

4. The facility consists of two Class III landfills - Landfills 1 and 2 (LFs-1 and 2), and one Class II landfill - Landfill 3 (LF-3), as defined in Article 3, Chapter 15, Division 23 of the California Code of Regulations (CCR). LF-1 and LF-2 each have only one disposal module (DMs-1 and 2.1, respectively). LF-3 was re-classified from Class III to Class II in 1995. It will ultimately have 15 Class II disposal modules, including an existing module (DM-2.2), and fourteen future expansion modules (DMs-3 through 16). The expansion will extend from the existing landfill eastward towards Highway 113, as shown in Attachment B: Site Map.

5. The proposed revisions include modification of the base liner and side-slope design of the remaining LF-3 expansion modules, and a revised engineered alternative design (EAD) to satisfy the siting requirements of Chapter 15. The Discharger also requests approval for the use of leachate for dust control purposes, and has proposed a revision of the monitoring and reporting program to reduce the sampling and testing frequencies.

WASTES AND THEIR CLASSIFICATION

6. LF-1 (DM-1) has not been used for municipal solid waste (MSW) disposal since 1992, and, with the exception of asbestos, accepts only inert wastes intended to bring the landfill to final grade for closure.

7. The Discharger proposes to discharge MSW and designated waste to the Class II landfill units. These wastes are classified as 'inert waste', 'nonhazardous solid waste', and 'designated waste' using the criteria set forth in Chapter 15.

8. The Discharger is currently permitted to discharge wastes containing greater than one percent (>1%) friable asbestos, a hazardous material, in LFs-1, 2 and 3. Section 25143.7 of the California Health and Safety Code (HSC) permits the disposal in any landfill which has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with other applicable state and federal statutes and regulations.

9. Lead-contaminated (LC) soil which has been re-classified as "not hazardous", on a project specific basis, by the Department of Toxic Substances Control (DTSC), pursuant to Section 66260.200(f), Title 22, CCR, is also disposed of in LF-3. The waste is "designated" under Chapter 15. Prior to construction of LF-3 (DM-2.2) and re-classification of the landfill to Class II in 1995, LC soil from the City of San Francisco Muni Metro Project was used for intermediate cover material on the western and southern slopes of DM-2.1, a Class III module. The Discharger now plans to remove the LC soil from DM-2.1 and discharge it into LF-3. Future loads of will be disposed of/used as follows:

   - disposal in Class II landfill modules (LF-3)
   - use in Class II modules for daily and intermediate cover (LF-3)
   - use in the foundation layer for final cover of Class II modules (LF-3)
   - use in the foundation layer for final cover for Class III modules which are lined and have an LCRS (LF-2)

   The soil removed from DM-2.1 will be replaced with MSW and brought to final grade for closure.

10. Nonhazardous incinerator ash and petroleum-impacted soil are also disposed of and/or used for daily or intermediate cover at the landfill.

11. In April 1996, the Discharger began composting green waste and biosolids obtained from the City of Vacaville Wastewater Treatment Plant. The composting is done "in-vessel" using the "Ag-Bag" system developed by Ag-Bag Composting Technologies Corp. The Discharger proposes to use the compost as a soil amendment over intermediate cover to promote vegetative growth for erosion control. The "Ag Bag" composting area is shown in Attachment F: Monitoring Locations.

12. The Discharger also uses sludge, ash, and green waste for alternative daily cover (ADC) as part of a demonstration project approved by the Solano County Department of Environmental Management. The ADC Demonstration Project area is the active face of the landfill. In addition, nonhazardous domestic sewage and industrial/agricultural sludges, including olive wastes, are accepted at the landfill. The domestic sewage sludges contain no free liquids and are used as a soil amendment to promote vegetative growth on intermediate cover. The biosolids are first spread and dried to achieve acceptable moisture levels.

SURFACE AND GROUND WATER

13. The site is in the Putah plain, which is drained by natural and man-made water courses. The nearest surface water is the Alamo Creek A-1 Channel, an agricultural drainage canal, which runs by the north and east sides of the site, draining into Ulatis Creek, Cache Slough and the Sacramento River Delta. Ulatis Creek is about three miles southeast of the site. Alamo Creek formerly ran through the site but in the 1960s was diverted northeast of the site to Ulatis Creek. There is also a bird sanctuary area in the southeast corner of the site which must be maintained pursuant to the facility's Conditional Use Permit issued by the County. See Attachment B: Vicinity Map.

14. The beneficial uses of surface waters in the vicinity are domestic, municipal, agricultural, and industrial supply; ground water recharge; recreation; esthetic enjoyment; navigation; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources.

15. The depth to ground water varies from about 2 to 23 feet below ground surface (bgs), averaging about 10 feet bgs or 10 feet above mean sea level (MSL). The undisturbed gradient direction is generally to the southeast, however the natural gradient has been altered by de-watering activities in the borrow pit area.

16. The beneficial uses of ground water beneath the facility are municipal and domestic supply, agricultural irrigation, stock watering, industrial process supply, and industrial service supply.

17. Existing landfills at the facility do not meet the prescriptive siting requirements of the 1984 amendments to Chapter 15, which require at least five feet of separation between landfill wastes and the water table. Some portions of LF-1, filled prior to 1984, are at or below the historic high water table.

18. In an attempt to create an inward gradient facility as a preventative measure to contain any future migration of wastes, the Discharger constructed a slurry wall around LF-1 (DM-1) and LF-2 (DM-2.1). Ground water pumping was then initiated from a de-watering trench

along the western portion of LF-1, but subsequent monitoring showed that the slurry wall was ineffective in achieving its purpose.

19. Previous WDRs required the Discharger to conduct a hydrogeologic study and to submit a report of the results. In addition, the Discharger was required to submit a work plan and schedule for lowering the ground water elevations at LF-1 (DM-1) to achieve five feet of separation from landfill wastes. The Discharger has submitted this information and Board staff have determined that further ground water de-watering at DM-1 is not necessary to meet the siting requirements of Chapter 15.

20. High concentrations of inorganic constituents have been historically present in the shallow ground water, including chloride, sulfate, nitrate and total dissolved solids (TDS). Down gradient of LF-1, the TDS levels average about 1,700 ppm, compared to approximately 700 ppm up gradient. The Discharger has submitted a report which concludes that the high TDS concentrations in the ground water may be attributable to high natural background levels and spatial variability, rather than a release from LF-1. Board staff have not yet reviewed this report.

21. TDS has been detected up to 3,100 parts per million (ppm) in the landfill leachate. Other constituents of concern detected in the landfill leachate, include petroleum hydrocarbons, VOCs, semi-VOCs, and pesticides.

22. In December 1994, volatile organic compounds (VOCs) were found to be present in vadose zone liquids from lysimeterVZ-2.1 at DM-2.1, including acetone (15 μg/L), methylene chloride (2.0 μg/L), 1,1-dichloroethane (0.6 μg/L), 2-butanone (20 μg/L), cis-1,2-dichloroethene (0.6 μg/L), and toluene (4.4 μg/L). Two of these VOCs, methylene chloride (1.0 μg/L) and toluene (3.6 μg/L), were confirmed in February 1995, but no pore water has been recovered in any of the lysimeters since then. These WDRs contain a provision requiring the Discharger to further investigate this release event and determine whether any remedial measures are necessary. The provisions also require the Discharger to submit a report evaluating the effectiveness of the vadose monitoring system. The monitoring program includes a requirement that the lysimeters be periodically checked to ensure that they are in proper working order and that any necessary repairs be implemented.

23. Storm water discharges from the site are regulated by the State Water Resources Control Board (SWRCB) General Permit for Discharges of Storm Water Associated with Industrial Activities. Storm water is collected in one of two retention basins - one near the southwest corner of LF-1 and another immediately east of LF-1 - and periodically discharged into a nearby drainage ditch which flows into the Bird Sanctuary area.

24. A section of the facility is within the 100-year floodplain. However, flood protection berms will prevent inundation or washout of landfills due to floods with a 100-year return period. The Discharger proposes to construct a flood protection berm around all unfilled areas to at

least 10 feet above the surrounding terrain, as shown in Attachment D: Operations Map. These WDRs contain a provision requiring the Discharger to submit a report demonstrating that the location of the site within the floodplain will not restrict the 100-year flood flow.

FACILITIES OPERATION

25. Soil for use in liner construction and cover is obtained from a borrow pit immediately west of LF-1. The borrow pit has been excavated below the water table and must be periodically de-watered to allow further soil removal. Extracted ground water is used for various site operations, including irrigation, dust control, and composting.

26. Leachate from the leachate collection and removal system (LCRS) of the existing landfills (DMs-1, 2.1 and 2.2) is pumped from the LCRS sumps and stored in above ground tanks on-site. Leachate is currently trucked to and disposed of at the City of Vacaville Wastewater Treatment Facility. The Discharger is also requesting approval for the use of the leachate for dust control in lined areas of the facility.

WASTE MANAGEMENT UNIT DESIGN

Landfill 1

27. The eastern two-thirds of LF-1 is unlined and does not have an LCRS. The western third of the landfill is clay lined and has a 6-inch-thick gravel drainage layer for an LCRS. The module is covered by a 12 inch thick, low permeability interim, soil cover to prevent infiltration from rainfall.

28. The asbestos monofill at LF-1 has a de-watering trench, a leachate collection trench, and a composite base liner consisting of the following, from top to bottom:

- A one-foot thick gravel drainage blanket
- A 60-mil HDPE liner
- One-foot of compacted clay ($k < 1x10^{-6}$ cm/sec)

Leachate from the monofill and the rest of LF-1 (DM-1) drains into a centrally located sump (S-1) along the western edge of LF-1 (DM-1).

Landfill 2

29. DM-2.1 has a base liner and LCRS, and was constructed in the configuration of an inverse pyramid. The LCRS consists of one foot of gravel. The base liner over most of this landfill is a *composite* liner consisting of the following, from top to bottom:

- 60-mil HDPE (bottom side textured)
- Two feet of compacted clay soil ($k < 1x10^{-7}$ cm/sec)
- Prepared subgrade

Portions of the landfill constructed prior to 1994 (i.e. the inner third of the inverse pyramid) have only one foot of compacted clay ($k < 1 \times 10^{-6}$ cm/sec), and pre-date RCRA Subtitle D liner requirements. The landfill satisfies the Chapter 15 requirements for a Class III landfill. The landfill floor has a 2 percent slope and leachate is extracted from a centrally located sump at the base of the pyramid, where it is pumped through a pipeline above the liner to a collection tank at the southern edge of the module.

Landfill 3

30. Module DM-2.2, the first module constructed in LF-3, has a *composite* base liner and an LCRS. The LCRS consists of one foot of gravel. The liner has a 2 percent slope and leachate is extracted from two sumps located at the perimeter of the module. The module liner design consists of the following, from top to bottom:

- 60-mil HDPE geomembrane (bottom side textured)
- A geosynthetic clay liner (GCL) with a 30-mil HDPE geomembrane backing
- One foot of compacted clay ($k < 1 \times 10^{-7}$ cm/sec)
- Prepared subgrade consisting of six inches of re-compacted native soils

The design for DM-2.2 was approved as an engineered alternative. The Discharger demonstrated that the use of a GCL with 12 inches of compacted clay liner ($k < 1 \times 10^{-7}$ cm/sec) provides liquid containment capacity equal to *five* feet of 1×10^{-7} cm/sec compacted clay. The 30-mil HDPE geomembrane bonded to the GCL provides additional water quality protection.

31. The LCRS and base liner design for the expansion modules, including the engineered alternative design (EAD), was approved for DM-2.2 and the remaining expansion modules (DMs-3 through 16) in 1995 (Board Order No. 95-202). The Discharger now proposes to reduce the thickness of the gravel LCRS to one-half foot for the remaining expansion modules, as shown in Attachment E, Section I.

32. The Discharger proposes the following type of composite liner for the side-slopes of the expansion modules which overlie unlined Class III landfill module (DM-1), as shown in Attachment E, Section III:

- geocomposite (geotextile filter/drainage geonet) - LCRS
- 60-mil HDPE geomembrane (bottom side textured)
- A geosynthetic clay liner (GCL) bonded with a 30-mil HDPE geomembrane
- One and one-half feet of compacted soil ($k < 1 \times 10^{-7}$ cm/sec)

- Prepared subgrade consisting of six inches of re-compacted native soils

For the side-slopes of those Class II modules which will overlie portions of LF-2 which already have a Subtitle D liner (ie. DMs-2.2, 11 and 16), the Discharger proposes the following modification:

- 60-mil HDPE geomembrane (bottom side textured)
- Prepared subgrade consisting of six inches of re-compacted native soils

33. The side-slopes of modules along the perimeter levee will have a composite liner, from top to bottom, as shown in Attachment E, Section II:

- geocomposite (geotextile filter/drainage geonet) - LCRS/cushion
- 60-mil HDPE geomembrane (bottom side textured)
- A geosynthetic clay liner (GCL) bonded with a 30-mil HDPE geomembrane
- geocomposite (geotextile filter/drainage geonet) - capillary break

SITING REQUIREMENTS

34. Section 2530 (c) of Chapter 15 requires that *new* landfills be "sited, designed, constructed and operated", to ensure or maintain at least five feet of separation between the contained wastes and the highest anticipated level of the ground water table. Existing landfills are to be "operated" to maintain the required separation.

35. Because the depth to ground water table is sometimes less than five feet below ground surface during the wet season, the facility cannot meet the prescriptive Section 2530 © criteria with respect to existing and proposed landfills.

36. Since the LF-1 (DM-1) footprint pre-dates the 1984 amendments to Chapter 15, there is no prescriptive requirement to achieve this separation.

37. Previous WDRs approved an engineered alternative to the Section 2530 (c) criteria; Order No. 89-178 stated that if a synthetic liner is used and the discharger demonstrates that they meet the requirements of Section 2510, then the separation between waste and ground water may be reduced to *three feet*, but would still require Board approval through revised WDRs. Module LF-2 (DM-2.1) was constructed to these specifications in 1992.

38. Approximately 6.5% of the area of each Landfill 3 module has less than five feet of separation, and the sump areas, comprising approximately 0.6% of the unfilled landfill areas, will have 2.5 feet of separation between wastes and ground water, shown on Attachment D.

39. In Order No. 95-202, the Board approved expansion modules DMs-2.2 through 16, including an EAD allowing for a minimum separation of two and one half feet from the bottom of the LCRS to the ground water table. The EAD included a one-foot gravel layer under each new module base liner to serve as a capillary break and underdrain. The threat to water quality was considered further mitigated by the fact that the composite base liner designs for these modules were demonstrated to provide more than the degree of protection required by Subtitle D and Chapter 15. This EAD was incorporated in DM-2.2.

40. The Discharger proposes a revised EAD for the remaining LF-3 expansion modules (DMs-3 through 16). The modification consists of a reduction in the thickness of the capillary break gravel layer under each module to one-half foot (instead of one-foot as previously approved). See Attachment E, Section I. The Discharger has demonstrated that this proposed EAD is consistent with the performance goal addressed by the prescriptive standard and affords equivalent or better protection against water quality impairment.

41. No capillary break is necessary for the side-slopes of Class II units overlying Class III wastes to meet the Section 2530 (c) criteria. See Attachment E, Section III.

42. The perimeter levee side-slopes will have an EAD consisting of a geocomposite (geotextile filter/geonet/ geotextile filter) capillary break, as shown in Attachment E, Section II. The Discharger has demonstrated that this proposed EAD is consistent with the performance goal addressed by the prescriptive standard and affords equivalent or better protection against water quality impairment.

LANDFILL CLOSURE AND FINANCIAL ASSURANCES

43. The Discharger has submitted a preliminary closure plan which details closure and post closure maintenance activities pursuant to Section 2581 of Chapter 15. The Discharger intends to place final cover on landfill areas as they are filled with waste to final grade. Existing LCRSs and ground water monitoring programs will be maintained and additional collection and monitoring systems will be constructed and maintained as new landfill units are constructed.

44. The Discharger has obtained and maintained assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. Such assurances or funds for corrective action consist of an irrevocable trust fund.

CEQA CONSIDERATIONS

45. The action to update WDRs for this facility is exempt from the provisions of the California Environmental Quality Act, (Public Resources Code, Section 21000 et seq.), in accordance with Title 14, CCR, Section 15301.

OTHER CONSIDERATIONS

46. This Order implements:

    a. the Water Quality Control Plan, Third Edition, for the Sacramento River Basin and the San Joaquin River Basin;
    b. the prescriptive standards and performance goals of Chapter 15, effective 27 November 1984, and subsequent revisions;
    c. the prescriptive standards and performance criteria of 40 CFR Part 258, (Subtitle D of the Resource Conservation and Recovery Act); and
    d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

47. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land as stated herein.

48. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.

49. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 95-269 is rescinded and it is further ordered that B&J Drop Box Corporation, a subsidiary of Norcal Waste Disposal Systems, and its agents, assigns, and successors, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or ground water is prohibited.

2. The discharge of ground water, storm water, or wastewater to surface water or any surface water drainage courses is prohibited without an NPDES permit authorizing the discharge.

3. The discharge of waste to ponded water from any source is prohibited.

4. The discharge of waste within 100 feet of surface waters is prohibited.

5. The discharge of hazardous wastes at the facility, except for friable asbestos as described in Finding No. 8, or other wastes granted a variance by the Department of Toxic Substances Control, is prohibited.

6. The discharge of designated wastes to Class III landfill units is prohibited.

7. Designated wastes, including LC soil, shall be commingled with MSW only in Class II landfill modules.

8. The discharge of wastes to LF-1 (DM-1), with the exception of asbestos and inert wastes intended to bring the module to final grades, is prohibited.

9. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:

   a. require a higher level of containment than provided by the unit; or
   b. are "restricted hazardous wastes"; or
   c. impair the integrity of containment structures

   is prohibited.

10. The ponding of any liquid on any landfill module that has received waste is prohibited.

11. The discharge of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids), except dewatered sewage or water treatment sludge as provided in Section 2523 (c) of Chapter 15, to LF-1 and LF-2 is prohibited.

12. The discharge to the landfill units of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity is prohibited.

13. The discharge of wastes (including composting wastes) as part of the final cover for any landfill is prohibited. Compost and/or de-watered biosolids may be used as a

soil amendment over intermediate or final cover to promote vegetative growth, if applied at agronomic rates and there is no threat to water quality from storm water runoff.

14. Leachate generated by one landfill shall not be allowed to enter another landfill. Leachate extracted from LF-1 (DM-1), or captured in LFs-2 and/or 3, shall be collected in above-ground tanks pending offsite disposal or beneficial re-use for dust control purposes.

15. The discharge of biohazardous wastes at the facility is prohibited. Non-infectious medical wastes treated and transformed into solid waste (as defined by Section 40191 (c) of the California Public Resources Code) in accordance with the Medical Waste Management Act (Section 118215 of the California Health and Safety Code) may be disposed of at the landfill, provided that no designated wastes are disposed of in Class III modules.

16. The discharge of wastes to any part of the landfills shall not cause a 'pollution' or 'nuisance' as defined under the California Water Code.

17. The creation of a waste pile on the site for the purpose of composting, stockpiling, drying or any other purpose is prohibited without revision of these WDRs, separate WDRs authorizing the new project, or a wavier thereof by the Board. Temporary waste piles may be created during the period 1 May through 1 October.

B. DISCHARGE SPECIFICATIONS

1. Wastes shall only be discharged to landfills specifically designed for their containment. Wastes shall not be temporarily stockpiled outside of a module pending disposal or use within that or any other module without Board staff written approval.

2. The following minimum separation shall be maintained between the wastes or leachate and the highest anticipated elevation of the ground water, at each landfill module:

   (a) Three feet at LF-2 (DM-2.1).

   (b) Two and one-half feet at DMs-2.2 through 16.

3. Prior to the discharge of waste to a waste management unit, all wells within 500 feet of the unit shall have sanitary seals which meet the requirements of the Solano County Department of Environmental Management or shall be properly abandoned.

A record of the sealing and/or abandonment of such wells shall be sent to the Board and to the State Department of Water Resources.

4. The handling and disposal of friable asbestos-containing wastes at this facility shall be in accordance with all applicable federal and state statutes and regulations.

5. The Discharger shall not accept petroleum contaminated soils for disposal to Class III modules in excess of the following designated levels: TPH-g (50 μg/kg), Benzene (10 μg/kg); MTBE (400 μg/kg); TPH-d (10 mg/kg -TDL) or (100 μg/L - SDL).

6. Landfill leachate may be used during dry periods for dust control purposes. The leachate shall be applied as follows:

   a. The leachate shall only be used on onsite; and
   b. The leachate shall only be used on roadways at the landfills; and
   c. The leachate shall only be used on lined areas; and
   d. The leachate shall not be applied in excessive amounts or cause runoff from the roadway areas.

7. The co-disposal of sewage sludge with MSW shall not exceed a refuse to sludge ratio of five to one.

C. FACILITY SPECIFICATIONS

General Landfill Construction

1. Each landfill module constructed after the effective date of this Order shall be designed and constructed in accordance with Chapter 15 and this Order and approved by Board staff prior to construction and again prior to operation. The plans submitted to Board staff for review and approval shall include, but not be limited to, the engineered design plans for the landfill module, the construction specifications, and a construction quality assurance (CQA) plan. The final construction report shall include, but not be limited to, construction record drawings for the landfill module, a CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspectors' original field notes, and a certification as described in Provision No. 9 of this Order.

2. New landfill modules shall not be located in wetlands.

3. All containment systems installed after 1 October 1993 shall satisfy the performance criteria contained in Subtitle D 40 CFR 258 and the criteria for an engineered alternative provided in Section 2510(b) of Chapter 15, where the performance of the

alternative composite liner's components, in combination, equal or exceed the waste containment capability of the prescriptive design.

4. All leachate collection and removal systems shall convey to a sump or other appropriately lined collection area all leachate which reaches the liner. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.

5. New clay liners shall have a maximum hydraulic conductivity of 1.0×10^{-7} cm/s, and a minimum relative compaction of 90 percent. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Landfill final covers shall have a maximum hydraulic conductivity less than or equal to the hydraulic conductivity of the bottom liner system, and a minimum relative compaction of 90 percent. Compositely lined units shall have composite covers which provide equivalent protection as the liner. Hydraulic conductivities of cover materials shall be determined by laboratory tests using water. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the liner and cover meet the hydraulic conductivity and compaction requirements.

6. LCRSs shall be designed, constructed, and maintained to collect at least twice the anticipated daily volume of leachate generated by the module and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below the minimum needed to ensure safe pump operation.

7. Leachate generation by DM-2.1 through DM-16 shall not exceed 85 percent of the design capacity of the LCRSs. If leachate generation exceeds this value and/or if the depth of fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately notify the Board in writing within seven days.

8. All future Class II landfill modules shall be designed and constructed for a maximum credible earthquake and 1000-year 24-hour storm events.

Landfill Specifications

9. The leachate collection system in DM-1 shall consist of sufficient leachate monitoring/extraction devices to ensure that leachate does not accumulate in deposited wastes.

10. The LCRS shall be designed and operated to be free draining and at no time shall the LCRS be allowed to become a pressurized conduit.

11. Each of the LF-3 expansion modules DMs-3 through 16 shall have an LCRS, base liner, and capillary break, as described in Finding Nos. 31 and 40, and shown on Attachment E, a part of this Order.

12. Each LF-3 module constructed in areas abutting LF-1 (DM-1) and LF-2 (DM-2.1) shall have a waste side-slope containment system as described in Finding No. 32 and shown in Attachment E, a part of this Order.

13. Each landfill unit perimeter levee side-slope shall have a base liner, LCRS, and capillary break as described in Finding Nos. 33 and 42, and shown in Attachment E.

14. DMs- 3 through 16 shall be constructed to provide a minimum separation of 2.5 feet between wastes and leachate and the highest anticipated elevation of underlying ground water.

Protection from Storm Events

15. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1000-year, 24-hour precipitation conditions.

16. Annually, prior to the anticipated rainy season but no later than 1 November, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes.

18. If in a 100-year floodplain, MSWLF units shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. (40 CFR 258.11). Units which cannot comply with this requirement shall close by 9 October 1996, unless otherwise extended by the appropriate authority (40 CFR 258.16).

19. The Discharger shall prevent flood waters from a 100-year flood from contacting wastes in a disposal module. As the site is developed, a flood protection and slope stability levee (or berm) shall be constructed around the site to at least 10 feet above the surrounding terrain or 40 feet above mean sea level to prevent flood waters from a 100-year flood from entering the site.

D. RECEIVING WATER LIMITATIONS

Water Quality Protection Standard

The concentrations of Constituents of Concern in waters passing through the Points of Compliance shall not exceed the Concentration Limits established pursuant to and enumerated in Monitoring and Reporting Program No. 97-145, which is attached to and made part of this Order.

E. CLOSURE SPECIFICATIONS

Landfill Closure

1. The method used to close each landfill at the facility and maintain protection of the quality of surface and ground waters shall comply with waste discharge requirements established by the Board and the most current version of the closure and post-closure maintenance plan which has been approved by both the Board, the CIWMB, the Local Enforcement Agency.

2. At closure, each landfill unit shall receive a final cover which is designed and constructed to function with minimum maintenance and consists, at a minimum, of a two-foot thick foundation layer (which may contain waste materials), overlain by a one-foot thick clay cap, and topped by a one-foot thick vegetative soil layer. The clay cap of the Class III units shall have a permeability equal to or less than 1×10^{-6} cm/sec and each compositely lined unit shall have a composite cover with a permeability providing equivalent protection as the landfill liner system.

3. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.

4. Closed landfill units shall be graded to at least a three-percent (3%) grade and maintained to prevent ponding.

5. Leachate monitoring and collection continue throughout the post-closure period to ensure that leachate mounding does not occur and that five-feet of separation is maintained between ground water and wastes (except for DM-1).

F. FINANCIAL ASSURANCE

The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the waste management units. The Discharger shall also maintain an irrevocable closure fund or other

means to ensure adequate closure and post-closure maintenance of each waste management unit.

G. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated September 1993, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.

2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. 97-145, which is attached to and made part of this Order. A violation of the MRP is a violation of these waste discharge requirements.

3. The Discharger shall conduct an investigation to evaluate the effectiveness of existing vadose zone monitoring systems and to determine whether there are VOCs in the unsaturated zone, as indicated by the December 1995 monitoring results at LF-2 (DM-2.1). The results shall be included in the Fourth Quarter 1997 Quarterly Monitoring Report, or in the Annual Report for 1997. If a release is confirmed, the Discharger shall respond in accordance with the requirements of Chapter 15.

4. The Discharger shall receive approval from the Executive Officer before discharging waste to landfills constructed after the effective date of this Order. The Discharger shall submit to the Board all documentation (i.e., reports, plans, designs) required by this Order for review and approval by Board staff prior to implementation.

5. The Discharger shall submit design details for landfill units constructed abutting LF- 1 (DM-1) and LF-2 (DM-2.1) for approval by the Executive Officer 90 days prior to the initiation of construction.

6. The Discharger shall notify the Board in writing of any change in ownership or responsibility for construction or operation of the landfills. This notification shall be given prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.

7. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

8. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor ground water, leachate from the landfill units, the vadose zone, and surface waters per Monitoring and Reporting Program No. 97-145 throughout the active life of the waste management units and the post-closure maintenance period.

9. A registered civil engineer or a certified engineering geologist shall certify that all landfill module at this facility meet the construction or prescriptive standards and performance goals of Chapter 15 prior to waste discharge. This includes siting, design of liners, LCRSs, precipitation & drainage controls, covers, etc., and considerations of seismic and flood safety, except for the engineered alternatives described in Findings 32, 33, and 34 above and in Landfill Specifications 10, 11 and 12, which will be certified to be consistent with the performance goal addressed by the standard and to afford equivalent protection against water quality impairment.

10. The Discharger shall maintain legible records of the volume and type of each waste discharged at each landfill and the manner and location of discharge. Such records shall be maintained at the facility or a nearby office until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.

11. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all landfills will not threaten water quality.

12. As part of the Water Quality Protection Standard described in the attached Monitoring and Reporting Program No. 97-145, the Discharger shall submit the following items:

Item		Due Date
a.	A proposal describing the Detection Monitoring methodology to be used at each existing Landfill for identification of a release	1 October 1997
b.	A proposal describing the Detection Monitoring methodology to be used at each new Landfill for identification of a release	Prior to startup
c.	An updated list of proposed Concentration Limits for each constituent group for each media at each existing Landfill	1 October 1997

Item		Due Date
d.	A list of proposed Concentration Limits for each constituent group for each media at each new Landfill	Prior to startup
e.	An updated list of proposed Monitoring Points for each media at each existing Landfill	1 October 1997
f.	A list of proposed Monitoring Points for each media at each new Landfill	Prior to startup

14. The Discharger shall comply with all applicable provisions of Chapter 15 that are not specifically referred to in this Order.

15. The Board will review this Order periodically and will revise these requirements when necessary.

H. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. 97-145, and in the Standard Provisions and Reporting Requirements which are attached hereto and made part of this Order.

2. Within six months of the adoption of these requirements the Discharger shall submit to the Board, for approval, a revised report describing a periodic load-checking program to be implemented by the Discharger to ensure that "hazardous wastes" and "designated wastes" are not discharged to the Class III landfill units and to ensure that "hazardous wastes" are not discharged to Class II landfill units.

3. If leachate generation exceeds the maximum value specified in these requirements for lined disposal modules, and/or if the depth of fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately cease the discharge of sludge and other high-moisture wastes to the landfill unit and shall notify the Board in writing within seven days. Notification shall include a time table for corrective action necessary to reduce leachate production.

4. Within 90 days of the adoption of this Order, the Discharger shall submit a report which demonstrates that the location of the site within the floodplain will not restrict the 100-year flood flow. The report shall be certified by a registered civil engineer or a certified engineering geologist.

5. The Discharger shall submit a status report regarding the financial assurances for corrective action and closure every two years, beginning in August 1999, after the date of adoption of these requirements that either validates the ongoing viability of the financial instrument or proposes and substantiates any needed changes.

6. The Discharger shall notify the Board in writing of any change in ownership or responsibility for construction or operation of the landfills. The Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

I, GARY M. CARLTON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Region Water Quality Control Board, Central Valley Region, on 20 June 1997.

GARY M. CARLTON, Executive Officer

Attachments

AMENDED
JDM/20 June 1997

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 97-145
FOR
NORCAL WASTE DISPOSAL SYSTEMS, INC.
B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL FACILITY
CLASS II AND CLASS III LANDFILLS
SOLANO COUNTY

The B&J Drop Box Sanitary Landfill facility, is owned and operated by B&J Drop Box Corporation (hereafter Discharger), shall maintain water quality monitoring systems that are appropriate for detection monitoring and any necessary corrective action, and that comply with the provisions of Title 23, California Code of Regulations (CCR), Division 3, Chapter 15, Article 5.

I. REPORTING REQUIREMENTS

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in non-compliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

Field and laboratory tests shall be reported in the quarterly monitoring reports. Quarterly monitoring reports shall be submitted to the Board by the **30th day of the month** following the calendar quarter in which the samples were taken. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board. An annual report shall be submitted to the Board which contains both tabular and graphical summaries of the monitoring data obtained during the previous twelve months, so as to show historical trends at each well.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed by standard laboratory methods as described in Attachment H.

A. MONITORING REPORTS REQUIRED

1. Water Quality Protection Standard Report

Any changes to the water quality protection standard are to be included in the annual monitoring report as described in Subsection 3.

2. Quarterly Monitoring Report

This report shall include the results of Detection Monitoring, in accordance with the schedules specified in this Monitoring and Reporting Program. The results for each monitoring program for each media and landfill should be presented and discussed separately in the report. In the event of a release, the report shall include the results of Evaluation and/or Corrective Action Monitoring as appropriate.

3. Annual Monitoring Report

The Discharger shall submit the Annual Monitoring Report as specified in the Standard Provisions and Reporting Requirements. The report shall summarize the monitoring results for the year and, in the event of a release, shall include a discussion of the progress toward re-establishment of compliance with waste discharge requirements and water quality protection standard.

4. Constituents-of-Concern (COC) 5-Year Report

The Discharger shall submit reports of the results of ground water monitoring for the Constituents of Concern every 5 years, or more frequently if required. The COC Report may be combined with a Quarterly Monitoring Report or an Annual Report having a Reporting Period that ends at the same time.

5. Leachate Monitoring Report

The Discharger shall report to the Board by no later than **31 January** of a given year the analytical results of the leachate sample taken the previous Fall, including an identification of all detected COCs in Attachment H that are not on the MSWLF's list (non-COCs). When the sample is taken in the Spring, the Discharger shall report the analytical results to the Board no later than **1 August**. The parameters shall include volatile organic compounds.

During any year in which a spring leachate retest is performed, the Discharger shall submit a report to the Board, by no later than **31 July** of that year, identifying all constituents which must be added to the MSWLF's COC list as a result of having been detected in both the (previous calendar year's) fall sample and in the spring retest sample.

B. STANDARD OBSERVATIONS

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit, for the perimeter of the landfill

module, and for the receiving waters. The standard observations shall be performed on a weekly basis and shall include those elements as defined in the Standard Provisions and Reporting Requirements.

C. REQUIRED NOTIFICATIONS

If the Discharger, through a *detection monitoring program*, or the Board finds that there is a statistically significant increase in indicator parameters or waste constituents over the water quality protection standards at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within 90 days, the Discharger shall submit to the Board the results of the re-sampling and either:

a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or

b. an amended Report of Waste Discharge for the establishment of a verification monitoring program, per Section 2557 of Chapter 15, which is designed to verify that water quality protection standards have been exceeded and to determine the horizontal and vertical extent of pollution.

If the Discharger, through an *evaluation monitoring program*, or the Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days. Within 180 days, the Discharger shall submit to the Board an amended Report of Waste Discharge for the establishment of a corrective action program, per Section 2558 of Chapter 15, which is designed to achieve compliance with the water quality protection standards.

II. MONITORING REQUIREMENTS

A. General

There shall be a sufficient number of monitoring points for each monitored medium and landfill to detect a release.

Monitoring Points shall be monitored for the Monitoring Parameter listed in this Program at their corresponding frequencies. A sufficient number of samples shall be taken from all Monitoring points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

For each monitored medium, all Monitoring Points assigned to Detection Monitoring, including all Background Monitoring points, shall be monitored for the Monitoring Parameters and at the frequencies listed in this Program.

B. SOLID WASTE MONITORING

The Discharger shall monitor all wastes discharged to each landfill on a *monthly* basis and report to the Board as required. The Discharger shall monitor all wastes as follows:

Parameter	Units	Reporting Frequency
Quantity discharged	tons	Quarterly
Type of material discharged	—	Quarterly
Minimum elevation of discharge	feet & tenths, MSL	Quarterly
Capacity of unit remaining	percent	Annually

C. LEACHATE MONITORING

The leachate monitoring points are listed in **Table 1 - Leachate Monitoring Points** and shown in Attachment F.

TABLE 1 - LEACHATE MONITORING POINTS

Landfill	Monitoring Well	Collection Sump
DM-1	LWs-1, 2, 3, 4[1,2]	S-1
DM-2.1	- - -	S-2.1
DM-2.2	- - -	S-2.2A, S-2.2B
DM-9[3]	- - -	- - -
DM-11[3]	- - -	- - -

[1] Formerly named GWs-1, 2, 3, 4.
[2] Level measurement only, no samples taken.
[3] Modules under construction

All landfill unit LCRS sumps shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry sump, the Discharger shall immediately sample the leachate and shall continue to sample and analyze the leachate for parameters and frequencies listed in **Table 2- Leachate Monitoring Program**.

To verify and ensure that leachate mounding does not occur above the level of deposited wastes, all leachate extraction wells shall be monitored monthly for leachate elevation (feet, MSL) and amount of leachate extracted (gallons). The results of such monitoring shall be reported in the quarterly monitoring reports.

Leachate samples from the leachate monitoring network will be collected annually in the fourth quarter of the year and analyzed for COCs. If constituents are detected that are not already COCs, leachate will be re-sampled for those constituents (in the second quarter of the following year). If the COC is detected in the retest sample, it shall be added to the list of COCs in the ground water monitoring program, the surface water monitoring program, and the unsaturated zone monitoring program.

Each LCRS shall be hydraulically tested annually to demonstrate that it is still operating in conformance with the WDRs. The results shall be reported to the Board in the annual report and include comparison with earlier tests made under comparable conditions.

All visible portions of synthetic liners shall be inspected on a monthly basis and their condition reported quarterly to the Board.

TABLE 2 - LEACHATE MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Total Flow	gallons	Monthly
Flow rate	gallons/day	Monthly
Specific Conductance	µmhos/cm	Quarterly
pH	number	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Constituents of Concern		
Total Organic Carbon	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Total Alkalinity	mg/L	Annually

Parameter	Units	Frequency
Volatile Organic Compounds (EPA Method 8260, See Attachment H)	µg/L	Annually
Semi-Volatile Organic Compounds (EPA Method 8270, See Attachment H)	µg/L	Annually
Organophosphorus Compounds (EPA Method 8141, See Attachment H)	µg/L	Annually
Chlorinated Herbicides (EPA Method 8150, See Attachment H)	µg/L	Annually
Inorganics (Dissolved) (See Attachment H for Method)	mg/L	Annually

D. UNSATURATED ZONE MONITORING

The unsaturated zone monitoring network shall consist of soil pore liquid monitoring devices beneath the landfill modules. The monitoring points for the unsaturated zone are listed in **Table 3 - Unsaturated Zone Monitoring Points**, and shown in Attachment F.

TABLE 3 - UNSATURATED ZONE MONITORING POINTS

Landfill	Module	Background Lysimeter	Down Gradient Lysimeter
LF-1	DM-1	-----	-----
LF-2	DM-2.1	VZ-2.1	VZ-2.1
LF-3	DM-2.2	-----	-----
LF-3	DM-3[1]	-----	-----
LF-3	DM-9[1]	-----	-----
LF-3	DM-11[1]	-----	-----

[1] Disposal module not yet constructed.

Monitoring shall be conducted as shown in **Table 4 - Unsaturated Zone Monitoring Schedule**, and if liquid is present in a lysimeter, samples shall be collected and analyzed accordingly.

TABLE 4 - UNSATURATED ZONE MONITORING SCHEDULE

Parameter	Units	Frequency
Field Parameters		
Specific Conductance[1]	µmhos/cm	Quarterly
pH[1]	pH units	Quarterly
Monitoring Parameters		
Total Dissolved Solids[1] (TDS)	mg/L	Quarterly
Chloride[1]	mg/L	Quarterly
Sulfate[1]	mg/L	Quarterly
Nitrate - Nitrogen[1]	mg/L	Quarterly
Volatile Organic Compounds (EPA Method 8260, See Attachment G)	µg/L	Quarterly
Constituents of Concern[2]		
Total Organic Carbon[1]	mg/L	5 years
Carbonate[1]	mg/L	5 years
Bicarbonate[1]	mg/L	5 years
Total Alkalinity[1]	mg/L	5 years
Volatile Organic Compounds (EPA Method 8260, See Attachment H)	µg/L	5 years
Semi-Volatile Organic Compounds (EPA Method 8270, See Attachment H)	µg/L	5 years
Organophosphorus Compounds (EPA Method 8141, See Attachment H)	µg/L	5 years
Chlorinated Herbicides (EPA Method 8150, See Attachment H)	µg/L	5 years
Inorganics[1] (Total) (See Attachment E for Method)	mg/L	5 years

[1] All parameters to be monitored quarterly for one year in order to determine a concentration limit

[2] The unsaturated zone shall be tested every five years for the entire list of COCs listed in Table 5. Those COCs that are detected will be analyzed for in the following monitoring period. Any COCs detected in the retest sample shall be included in the COC list for the unsaturated zone. Thereafter, the COCs for the unsaturated zone monitoring program shall include those COCs detected and any COCs detected under the leachate monitoring program.

The Discharger shall conduct all necessary inspections and implement all necessary repairs to ensure the proper operations of the vadose zone monitoring system. If a lysimeter does not recover pore water during a given monitoring period, the Discharger shall investigate to determine whether that lysimeter is in proper working order. The results of the periodic inspections and investigations shall be included in the Quarterly Monitoring Report.

E. GROUND WATER MONITORING

1. Ground Water Elevation Monitoring

The Discharger shall conduct ground water elevation (GWE) monitoring quarterly for each monitored ground water body. The ground water elevation monitoring network shall, at a minimum, consist of the monitoring wells listed in **Table 5 - Detection Monitoring Wells**. Locations of these wells are shown on Attachment F. Other wells may also need to be monitored to adequately characterize the water table.

GWE monitoring shall include measurement of the water level in each well, and determination of the ground water gradient and gradient direction. This information shall be displayed on a water table contour map and/or ground water flow net for the site and submitted with the quarterly monitoring reports. GWEs shall be taken prior to purging the well and sampling for Monitoring Parameters when concurrently performing Detection Monitoring.

The Discharger shall compare the results for the period to previous periods and explain the difference, if any (i.e. seasonal variations, pumping, cessation of pumping etc.). The report shall include a narrative discussion of seasonal variations in GWE, the effects of pumping on the GWE, and whether the effected is attributable to pumping or seasonal variation. The Discharger shall also propose locations for additional monitoring wells before additional waste modules are constructed.

2. Ground Water Extraction Monitoring

Water quality monitoring of extracted ground water shall be conducted pursuant to applicable WDRs for land or surface water discharge. An National Pollution Discharge Elimination System (NPDES) Permit is required for discharge to surface waters. The Discharger shall adequately monitor the extraction rates and amount of ground water extracted for the purposes of this monitoring program.

3. Detection Monitoring

With the following exceptions, the statistical method of interwell comparisons shall be used for the detection of a release from each landfill module, using an appropriate statistical method as described in Article 5 of Chapter 15 and approved by Board staff:

a. Where there is significant spacial variability in constituent concentrations due to geologic heterogeneity, the statistical method of *intrawell* comparisons may be used if approved by Board staff. In this case, each monitoring well will function as its own background well, using Concentration Limits derived from historical concentrations.

b. A non-statistical method shall be used to detect a release of a COC which is not present in background (i.e.VOCs). In this case, it is not necessary to establish background monitoring points or Concentration Limits for that COC. Since the monitoring data indicates that VOCs are not present in background, non-statistical analysis shall be used for VOC monitoring at all landfill modules until such time as a release of VOCs may be detected.

Using the method of interwell comparisons, there shall be a sufficient number of wells assigned to down gradient and background monitoring for the detection of a release. Adjustments in these assignments may be necessary due to seasonal gradient changes or a determination of spacial variability. The detection monitoring points for each landfill and aquifer are identified below in **Table 5 - Detection Monitoring Wells**.

TABLE 5 - DETECTION MONITORING WELLS

Landfill	Module	Aquifer	Background Wells	Detection Wells	Side Gradient	Method Types[4]
LF-1	DM-1	shallow	G-8, G-9	MW-3, 4, 4B[1]	G-6	-----
		deep	D-1	D-2, 3, 4		-----
LF-2	DM-2.1	shallow	G-10	E-22, 23	E-25	-----
		shallow		G-1[2], 2[2], 12, 13	G-3[2]	-----
		deep				-----
LF-3	DM-2.2	shallow	G-10[2]	E-22, 23		-----
		deep				-----
LF-3	DM-3[3]	shallow				-----
		deep		D-7[2]		-----
LF-3	DM-9[3]	shallow				-----
		deep				-----
LF-3	DM-11[3]	shallow				-----
		deep				-----

1. Monitoring wells MW-1 and MW-2 are installed through wastes and shall be properly abandoned by 15 October 1997.
2. Sampled annually in Fourth Quarter.
3. Disposal modules not yet constructed
4. To be updated per Provision No. 12 of Waste Discharge Requirements.

Sampling for detection monitoring shall be conducted as specified in **Table 6 - Ground Water Monitoring Schedule.**

TABLE 6- GROUND WATER MONITORING SCHEDULE

Parameter	Units	Frequency
Field Parameters		
Temperature	°C	Quarterly
Ground Water Elevation	Ft. & hundredths,MSL	Quarterly
Specific Conductance[1]	µmhos/cm	Quarterly
pH[1]	pH units	Quarterly
Turbidity[1]	Turbidity units	Quarterly
Monitoring Parameters		
Total Dissolved Solids[1] (TDS)	mg/L	Quarterly
Chloride[1]	mg/L	Quarterly
Sulfate[1]	mg/L	Quarterly
Nitrate - Nitrogen[1]	mg/L	Quarterly
Volatile Organic Compounds (EPA Method 8260, See Attachment G)	µg/L	Quarterly
Constituents of Concern[2]		
Total Organic Carbon[1]	mg/L	5 years
Carbonate[1]	mg/L	5 years
Bicarbonate[1]	mg/L	5 years
Total Alkalinity[1]	mg/L	5 years
Semi-Volatile Organic Compounds (EPA Method 8270, See Attachment H)	µg/L	5 years
Organophosphorus Compounds (EPA Method 8141, See Attachment H)	µg/L	5 years
Chlorinated Herbicides (EPA Method 8150, See Attachment H)	µg/L	5 years
Inorganics[1] (Dissolved) (See Attachment H for Method)	mg/L	5 years

[1] All wells shall be monitored quarterly until four quarters of data have been collected in order to determine concentration limits

[2] The ground water shall be tested in the fourth quarter of 1995 for the entire list of COCs listed in Table 3. Those COCs that are detected will be analyzed in the Spring of 1996. Any COCs detected in the retest sample shall be included in the COC list for ground water monitoring. Thereafter, the COCs for the ground water monitoring program shall include those COCs detected and any COCs detected under the leachate monitoring program. However, since portions of DM-1 are unlined, the ground water monitoring wells assigned to DM-1 shall be tested for the entire list of COC's.

Statistical analysis shall be performed on new wells as soon as four quarters of monitoring data are available. After the concentration limits of the new wells have been established, the results of statistical analysis of each well shall be used to determine whether the wells will be in detection monitoring, evaluation monitoring, or corrective action monitoring.

F. SURFACE WATER MONITORING

Surface water sampling shall be conducted in Alamo Creek upstream of the waste management facility at location SW-1 and downstream of the facility at SW-2 and SW-3, as shown in Attachment F. Monitoring shall be conducted according to the schedule in **Table 7 - Surface Water Monitoring Schedule**. Samples shall be collected from all stations and analyzed as specified in Table 4 - Surface Water Monitoring Program. The Quarterly Reports shall include the results of surface water monitoring and evaluation of potential impacts of the facility on surface water quality and compliance with the Water Quality Protection Standard.

In the alternative, surface water monitoring may be conducted pursuant to any applicable National Pollution Discharge Elimination System (NPDES) Permit regulating a discharge from the site to surface waters. In this case, the monitoring reports required herein shall reference that NPDES Permit.

TABLE 7 - SURFACE WATER MONITORING SCHEDULE

Parameter	Units	Frequency
Field Parameters		
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Total Suspended Solids (TSS)[1]	mg/L	Quarterly
Total Dissolved Solids (TDS)[1]	mg/L	Quarterly
Chloride[1]	mg/L	Quarterly
Sulfate[1]	mg/L	Quarterly
Nitrate - Nitrogen[1]	mg/L	Quarterly
Semi-Volatile Organic Compounds (EPA Method 8270, See Attachment H)	µg/L	Quarterly
Constituents of Concern		
Total Organic Carbon[1]	mg/L	5 years
Carbonate[1]	mg/L	5 years
Bicarbonate[1]	mg/L	5 years
Total Alkalinity[1]	mg/L	5 years
Chemical Oxygen Demand[1]	mg/L	5 years
Dissolved Oxygen	mg/L	5 years
Inorganics (Dissolved)[1] (See Attachment H for Method)	mg/L	5 years

[1] All parameters to be monitored quarterly for one year in order to determine a concentration limit.

G. STORM WATER MONITORING

Storm water monitoring shall be conducted in accordance with the new NPDES General Permit for Storm Water Discharges Associated with Industrial Activities (Water Quality Order No. 97-03-DW).

III. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard (Standard) for the Detection Monitoring Program for each landfill shall consist of the following elements:

1. Constituents of Concern;
2. Concentration Limits;
3. Points of Compliance;
4. Monitoring Points;
5. Compliance Period.

Each of these is described as follows:

1. Constituents of Concern

a. Unsaturated Zone - All constituents listed in Tables 4 & 8, Attachments G & H, and all other constituents detected (and confirmed) in the leachate.

b. Ground Water - All constituents listed in Tables 6 & 8, Attachments G & H, and all other constituents detected (and confirmed) in the leachate.

b. Surface Water - All COCs listed in Tables 7 & 9 and Attachments G& H.

2. Concentration Limits

The Concentration Limit for any given COC or monitoring parameter for a given monitored medium of a landfill shall be as follows:

a. Unsaturated Zone - The concentration limits for the unsaturated zone shall be developed when four quarters of data are available. The unsaturated zone monitoring point VZ-2.1 will function as its own background.

b. Ground Water

i. The concentration limits for synthetic organic compounds (VOCs, Semi-VOCs, pesticides and herbicides) in all mediums shall be their respective Method Detection Limits.

ii. Where the method of *interwell* comparisons is used for detection monitoring, the concentration limits for inorganic constituents in ground water shall be determined from background water quality data.

iii. Where the method of *intrawell* comparisons is used for detection monitoring, historical well concentrations shall be used for determining the concentration limits. If historical concentrations of well data are not available, data from at least four quarters of recent background monitoring may be used instead. Historical concentration limits for inorganic constituents (other than metals) were previously established for LF-1 (DM-1), as shown in **Table 8 - Historical Ground Water Concentrations for DM-1**. This list shall be updated and re-analyzed if this method is used.

c. Surface Water - The concentration limits for inorganics in surface water were established using the historical data set from upstream monitoring point SW-1 and are specified in the following **Table 9 - Surface Water Concentration Limits**. The method used to determine concentration limits for inorganic constituents was the tolerance interval statistical method. Analytical data obtained from downstream Monitoring points SW-2 and SW-3 shall be compared to analytical data from SW-1 to evaluate potential landfill releases to surface water.

The above Concentration Limits shall be used as the basis of comparison with data from the Monitoring points in that monitored medium. Concentration limits for COCs shall be updated every 5 years; Concentration limits for Monitoring Parameters shall be updated annually. Updating tolerance limits will provide ongoing definition of water quality for the landfill.

3. Monitoring Points

The Monitoring points for Detection Monitoring are listed in Sections D, E, and F of this Order.

4. Points of Compliance

The point of compliance is a vertical surface located at the hydraulically down gradient limit of each landfill module, extending through the uppermost aquifer underlying the unit.

5. Compliance Period

The Compliance Period is the number of years equal to the active life of the landfill plus the closure period. Each time the Water Quality Protection Standard is exceeded (i.e., a release is discovered), the landfill begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the landfill has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____
GARY M. CARLTON, Executive Officer

20 June 1997
(Date)

JDM

AMENDED
20 June 1997

TABLE 8 - HISTORICAL GROUND WATER CONCENTRATIONS FOR DM-1

Constituent	Units	G-1	G-2	G-3	G-6
Specific Conductance (EC)	µmhos/cm	1722	3646	3265	2486
pH	pH Units	7.06-7.98	7.11-7.93	7.19-7.91	6.46-8.28
Total Dissolved Solids (TDS)	mg/L	1220	3015	2218	1877
Alkalinity, Bicarbonate	mg/L	321	479	602	777
Chloride	mg/L	308	492	687	488
Sulfide	mg/L	---	---	---	---
Nitrate-Nitrogen	mg/L	0.1 [1]	0.1 [1]	0.1 [1]	0.202
Total Organic Carbon	mg/L	---	---	---	---
Carbonate	mg/L	---	---	---	---
VOCs (EPA 8260 and 8270)	mg/L	Detect	Detect	Detect	Detect
Organochlorine Pesticide	mg/L	Detect	Detect	Detect	Detect
Chlorophenoxy Herbicides	mg/L	Detect	Detect	Detect	Detect
Organophosphorus Compounds	mg/L	Detect	Detect	Detect	Detect
Aluminum, dissolved	mg/L	---	---	---	---
Antimony, dissolved	mg/L	---	---	---	---
Arsenic, dissolved	mg/L	---	---	---	---
Barium, dissolved	mg/L	---	---	---	---
Beryllium, dissolved	mg/L	---	---	---	---
Cadmium, dissolved	mg/L	---	---	---	---
Calcium, dissolved	mg/L	76	91	76	113
Chromium, dissolved	mg/L	---	---	---	---
Cobalt, dissolved	mg/L	---	---	---	---
Copper, dissolved	mg/L	---	---	---	---
Iron, dissolved	mg/L	---	---	---	---
Lead, dissolved	mg/L	---	---	---	---
Magnesium, dissolved	mg/L	94	231	142	175
Manganese, dissolved	mg/L	0.059	0.253	0.282	0.148
Mercury, dissolved	mg/L	---	---	---	---
Nickel, dissolved	mg/L	---	---	---	---
Potassium, dissolved	mg/L	---	---	---	---
Selenium, dissolved	mg/L	---	---	---	---
Silver, dissolved	mg/L	---	---	---	---
Sodium, dissolved	mg/L	126	567	473	266
Thallium, dissolved	mg/L	---	---	---	---
Tin, dissolved	mg/L	---	---	---	---
Vanadium, dissolved	mg/L	---	---	---	---
Zinc, dissolved	mg/L	---	---	---	---

--- concentration limits to be determined after four quarters of data are available
[1] = the lower tolerance limit for nitrate-nitrogen was set at the practical quantitation limit

TABLE 8 - HISTORICAL GROUND WATER CONCENTRATIONS FOR DM-1 (cont'd)

Constituent	Units	G-8	G-9	G-10	G-12
Specific Conductance (EC)	µmhos/cm	---	1274	---	1383
pH	pH Units	---	6.85 - 8.07	---	7.07 - 7.99
Total Dissolved Solids (TDS)	mg/L	---	731	---	999
Alkalinity, Bicarbonate	mg/L	---	408	---	355
Chloride	mg/L	---	178	---	252
Sulfide	mg/L	---	---	---	---
Nitrate-Nitrogen	mg/L	---	0.1 [1]	---	---
Total Organic Carbon	mg/L	---	---	---	---
Carbonate	mg/L	---	---	---	---
VOCs (EPA 8260 and 8270)	mg/L	Detect	Detect	Detect	Detect
Organochlorine Pesticide, PCB	mg/L	Detect	Detect	Detect	Detect
Chlorophenoxy Herbicides	mg/L	Detect	Detect	Detect	Detect
Organophosphorus Compounds	mg/L	Detect	Detect	Detect	Detect
Aluminum, dissolved	mg/L	---	---	---	---
Antimony, dissolved	mg/L	---	---	---	---
Arsenic, dissolved	mg/L	---	---	---	---
Barium, dissolved	mg/L	---	---	---	---
Beryllium, dissolved	mg/L	---	---	---	---
Cadmium, dissolved	mg/L	---	---	---	---
Calcium, dissolved	mg/L	---	47	---	47
Chromium, dissolved	mg/L	---	---	---	---
Copper, dissolved	mg/L	---	---	---	---
Iron, dissolved	mg/L	---	---	---	---
Lead, dissolved	mg/L	---	---	---	---
Magnesium, dissolved	mg/L	---	60	---	60
Manganese, dissolved	mg/L	---	---	---	---
Mercury, dissolved	mg/L	---	---	---	---
Nickel, dissolved	mg/L	---	---	---	---
Potassium, dissolved	mg/L	---	---	---	---
Selenium, dissolved	mg/L	---	---	---	---
Silver, dissolved	mg/L	---	---	---	---
Sodium, dissolved	mg/L	---	147	---	113
Thallium, dissolved	mg/L	---	---	---	---
Tin, dissolved	mg/L	---	---	---	---
Vanadium, dissolved	mg/L	---	---	---	---
Zinc, dissolved	mg/L	---	---	---	---

--- concentration limits to be determined after four quarters of data are available
[1] = the lower tolerance limit for nitrate-nitrogen was set at the practical quantitation limit

TABLE 8 - HISTORICAL GROUND WATER CONCENTRATIONS FOR DM-1 (cont'd)

Constituent	Units	G-13	MW92-1	MW92-2	MW-4B
Specific Conductance (EC)	µmhos/cm	1318	---	---	4833
pH	pH Units	6.94-8.16	---	---	7.16 - 8.62
Total Dissolved Solids (TDS)	mg/L	670	---	---	1707
Alkalinity, Bicarbonate	mg/L	320	---	---	518
Chloride	mg/L	177	---	---	1320
Sulfide	mg/L	---	---	---	---
Nitrate-Nitrogen	mg/L	---	---	---	---
Total Organic Carbon	mg/L	---	---	---	---
Carbonate	mg/L	---	---	---	---
VOCs (EPA 8260 and 8270)	mg/L	Detect	Detect	Detect	Detect
Organochlorine Pesticide, PCB	mg/L	Detect	Detect	Detect	Detect
Chlorophenoxy Herbicides	mg/L	Detect	Detect	Detect	Detect
Organophosphorus Compounds	mg/L	Detect	Detect	Detect	Detect
Aluminum, dissolved	mg/L	---	---	---	---
Antimony, dissolved	mg/L	---	---	---	---
Arsenic, dissolved	mg/L	---	---	---	---
Barium, dissolved	mg/L	---	---	---	---
Beryllium, dissolved	mg/L	---	---	---	---
Cadmium, dissolved	mg/L	---	---	---	---
Calcium, dissolved	mg/L	44	---	---	37
Chromium, dissolved	mg/L	0.015	---	---	---
Cobalt, dissolved	mg/L	---	---	---	---
Copper, dissolved	mg/L	---	---	---	---
Iron, dissolved	mg/L	---	---	---	---
Lead, dissolved	mg/L	---	---	---	---
Magnesium, dissolved	mg/L	55	---	---	79
Manganese, dissolved	mg/L	---	---	---	---
Mercury, dissolved	mg/L	---	---	---	---
Nickel, dissolved	mg/L	---	---	---	---
Potassium, dissolved	mg/L	---	---	---	---
Selenium, dissolved	mg/L	---	---	---	---
Silver, dissolved	mg/L	---	---	---	---
Sodium, dissolved	mg/L	132	---	---	546
Thallium, dissolved	mg/L	---	---	---	---
Tin, dissolved	mg/L	---	---	---	---
Vanadium, dissolved	mg/L	---	---	---	---
Zinc, dissolved	mg/L	---	---	---	---

--- concentration limits to be determined after four quarters of data are available

TABLE 8 - HISTORICAL GROUND WATER CONCENTRATIONS FOR DM-1 (cont'd)

Constituent	Units	MW-3	MW-4	D-1	D-2	D-3
Specific Conductance (EC)	µmhos/cm	2597	2510	---	---	---
pH	pH Units	7.33 - 7.81	6.93 - 8.05	---	---	---
Total Dissolved Solids (TDS)	mg/L	1425	1620	---	---	---
Alkalinity, Bicarbonate	mg/L	461	370	---	---	---
Chloride	mg/L	355	575	---	---	---
Sulfide	mg/L	---	---	---	---	---
Nitrate-Nitrogen	mg/L	---	---	---	---	---
Total Organic Carbon	mg/L	---	---	---	---	---
Carbonate	mg/L	---	---	---	---	---
VOCs (EPA 8260 and 8270)	mg/L	Detect	Detect	Detect	Detect	Detect
Organochlorine Pesticide, PCB	mg/L	Detect	Detect	Detect	Detect	Detect
Chlorophenoxy Herbicides	mg/L	Detect	Detect	Detect	Detect	Detect
Organophosphorus Compounds	mg/L	Detect	Detect	Detect	Detect	Detect
Aluminum, dissolved	mg/L	---	---	---	---	---
Antimony, dissolved	mg/L	---	---	---	---	---
Arsenic, dissolved	mg/L	---	---	---	---	---
Barium, dissolved	mg/L	---	---	---	---	---
Beryllium, dissolved	mg/L	---	---	---	---	---
Cadmium, dissolved	mg/L	---	---	---	---	---
Calcium, dissolved	mg/L	48	100	---	---	---
Chromium, dissolved	mg/L	---	---	---	---	---
Cobalt, dissolved	mg/L	---	---	---	---	---
Copper, dissolved	mg/L	---	---	---	---	---
Iron, dissolved	mg/L	0.183	3.89	---	---	---
Lead, dissolved	mg/L	---	---	---	---	---
Magnesium, dissolved	mg/L	107	193	---	---	---
Manganese, dissolved	mg/L	0.151	0.639	---	---	---
Mercury, dissolved	mg/L	---	---	---	---	---
Nickel, dissolved	mg/L	---	---	---	---	---
Potassium, dissolved	mg/L	---	---	---	---	---
Selenium, dissolved	mg/L	---	---	---	---	---
Silver, dissolved	mg/L	---	---	---	---	---
Sodium, dissolved	mg/L	360	241	---	---	---
Thallium, dissolved	mg/L	---	---	---	---	---
Tin, dissolved	mg/L	---	---	---	---	---
Vanadium, dissolved	mg/L	---	---	---	---	---
Zinc, dissolved	mg/L	---	---	---	---	---

--- concentration limits to be determined after four quarters of data are available

TABLE 8 - HISTORICAL GROUND WATER CONCENTRATIONS FOR DM-1 (cont'd)

Constituent	Units	D-4	D-7	E-22	E-23	E-25
Specific Conductance (EC)	µmhos/cm	---	---	---	---	---
pH	pH Units	---	---	---	---	---
Total Dissolved Solids (TDS)	mg/L	---	---	---	---	---
Alkalinity, Bicarbonate	mg/L	---	---	---	---	---
Chloride	mg/L	---	---	---	---	---
Sulfide	mg/L	---	---	---	---	---
Nitrate-Nitrogen	mg/L	---	---	---	---	---
Total Organic Carbon	mg/L	---	---	---	---	---
Carbonate	mg/L	---	---	---	---	---
VOCs (EPA 8260 and 8270)	mg/L	Detect	Detect	Detect	Detect	Detect
Organochlorine Pesticide, PCB	mg/L	Detect	Detect	Detect	Detect	Detect
Chlorophenoxy Herbicides	mg/L	Detect	Detect	Detect	Detect	Detect
Organophosphorus Compounds	mg/L	Detect	Detect	Detect	Detect	Detect
Aluminum, dissolved	mg/L	---	---	---	---	---
Antimony, dissolved	mg/L	---	---	---	---	---
Arsenic, dissolved	mg/L	---	---	---	---	---
Barium, dissolved	mg/L	---	---	---	---	---
Beryllium, dissolved	mg/L	---	---	---	---	---
Cadmium, dissolved	mg/L	---	---	---	---	---
Calcium, dissolved	mg/L	---	---	---	---	---
Chromium, dissolved	mg/L	---	---	---	---	---
Cobalt, dissolved	mg/L	---	---	---	---	---
Copper, dissolved	mg/L	---	---	---	---	---
Iron, dissolved	mg/L	---	---	---	---	---
Lead, dissolved	mg/L	---	---	---	---	---
Magnesium, dissolved	mg/L	---	---	---	---	---
Manganese, dissolved	mg/L	---	---	---	---	---
Mercury, dissolved	mg/L	---	---	---	---	---
Nickel, dissolved	mg/L	---	---	---	---	---
Potassium, dissolved	mg/L	---	---	---	---	---
Selenium, dissolved	mg/L	---	---	---	---	---
Silver, dissolved	mg/L	---	---	---	---	---
Sodium, dissolved	mg/L	---	---	---	---	---
Thallium, dissolved	mg/L	---	---	---	---	---
Tin, dissolved	mg/L	---	---	---	---	---
Vanadium, dissolved	mg/L	---	---	---	---	---
Zinc, dissolved	mg/L	---	---	---	---	---

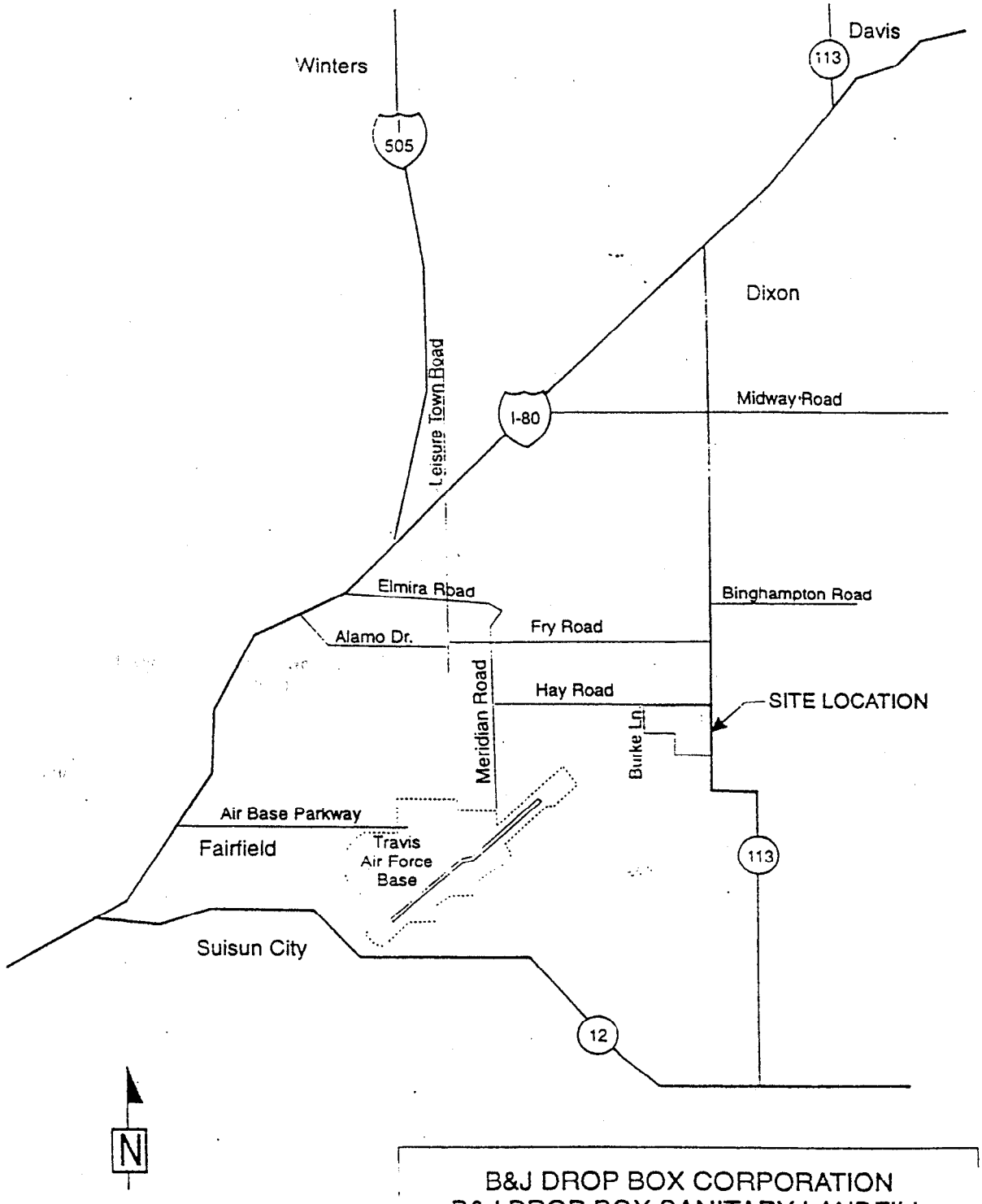
--- concentration limits to be determined after four quarters of data are available

TABLE 9 - SURFACE WATER CONCENTRATION LIMITS

Constituent	Units	SW-2 & SW-3
Specific Conductance (EC)	µmhos/cm	1740
pH	pH Units	6.50 - 9.98
Total Dissolved Solids (TDS)	mg/L	992
Total Suspended Solids (TSS)	mg/L	---
Alkalinity, Bicarbonate	mg/L	542
Chloride	mg/L	277
Sulfide	mg/L	2.02
Nitrate-Nitrogen	mg/L	---
Total Organic Carbon	mg/L	---
Chemical Oxygen Demand	mg/L	---
Oil & Grease	mg/L	---
Carbonate	mg/L	---
Aluminum, dissolved	mg/L	---
Antimony, dissolved	mg/L	---
Arsenic, dissolved	mg/L	---
Barium, dissolved	mg/L	---
Beryllium, dissolved	mg/L	---
Cadmium, dissolved	mg/L	---
Calcium, dissolved	mg/L	81
Chromium, dissolved	mg/L	---
Cobalt, dissolved	mg/L	---
Copper, dissolved	mg/L	---
Iron, dissolved	mg/L	2.11
Lead, dissolved	mg/L	---
Magnesium, dissolved	mg/L	87
Manganese, dissolved	mg/L	2.75
Mercury, dissolved	mg/L	---
Nickel, dissolved	mg/L	---
Potassium, dissolved	mg/L	21
Selenium, dissolved	mg/L	---
Silver, dissolved	mg/L	---
Sodium, dissolved	mg/L	178
Thallium, dissolved	mg/L	---
Tin, dissolved	mg/L	---
Vanadium, dissolved	mg/L	---
Zinc, dissolved	mg/L	---

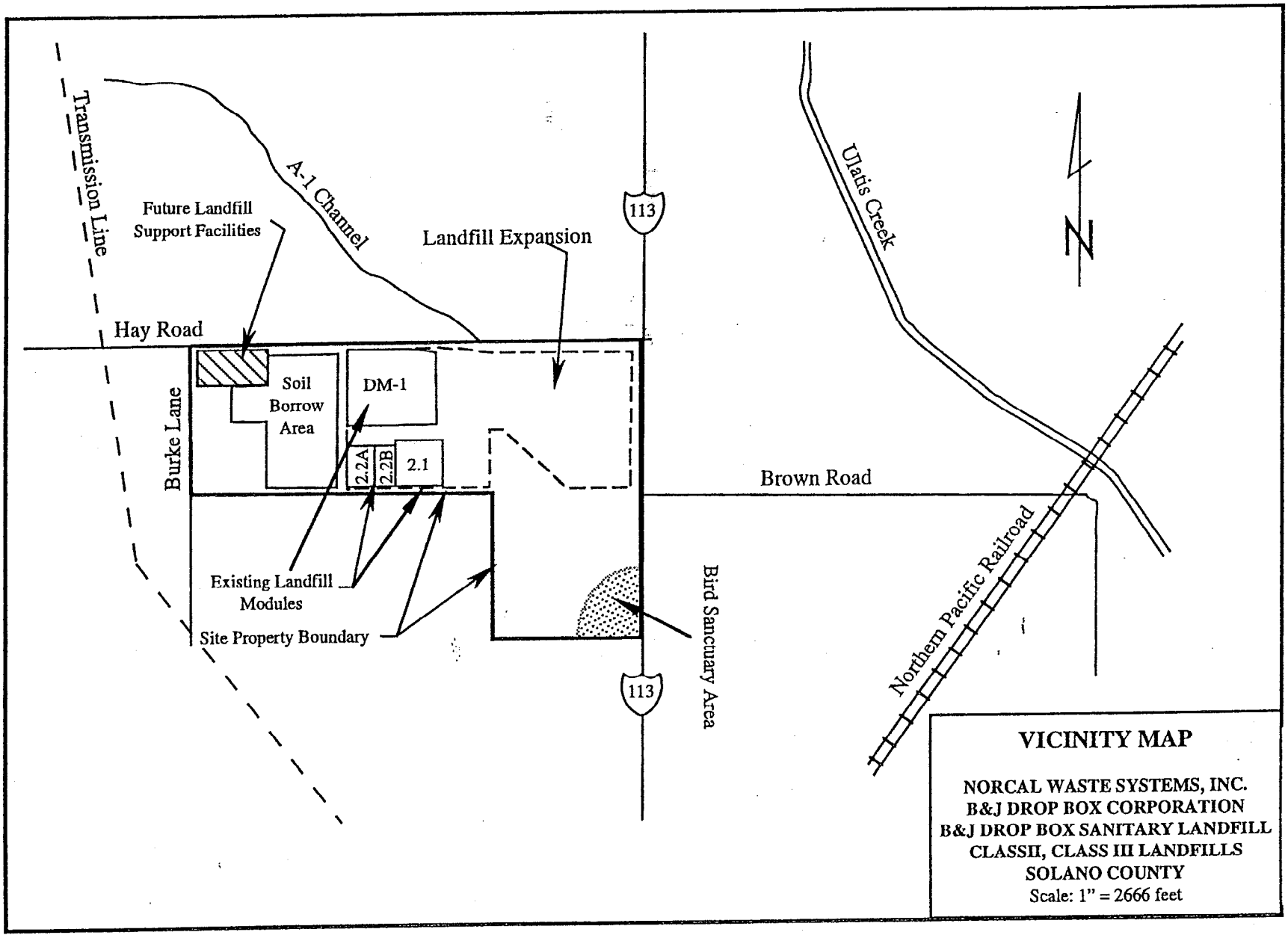
--- concentration limits to be determined after four quarters of data are available

ATTACHMENT A

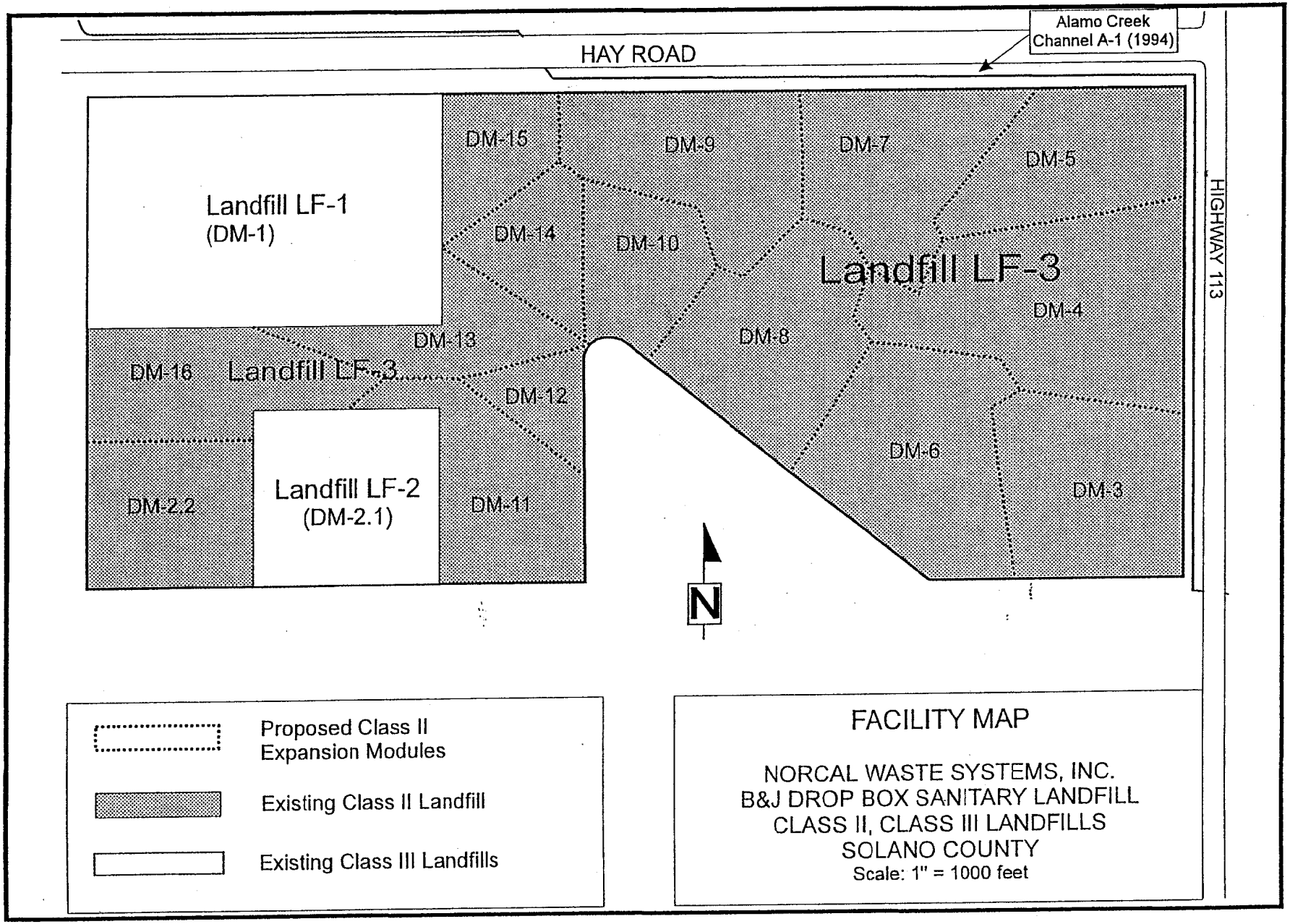


B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II, CLASS III LANDFILLS
SOLANO COUNTY

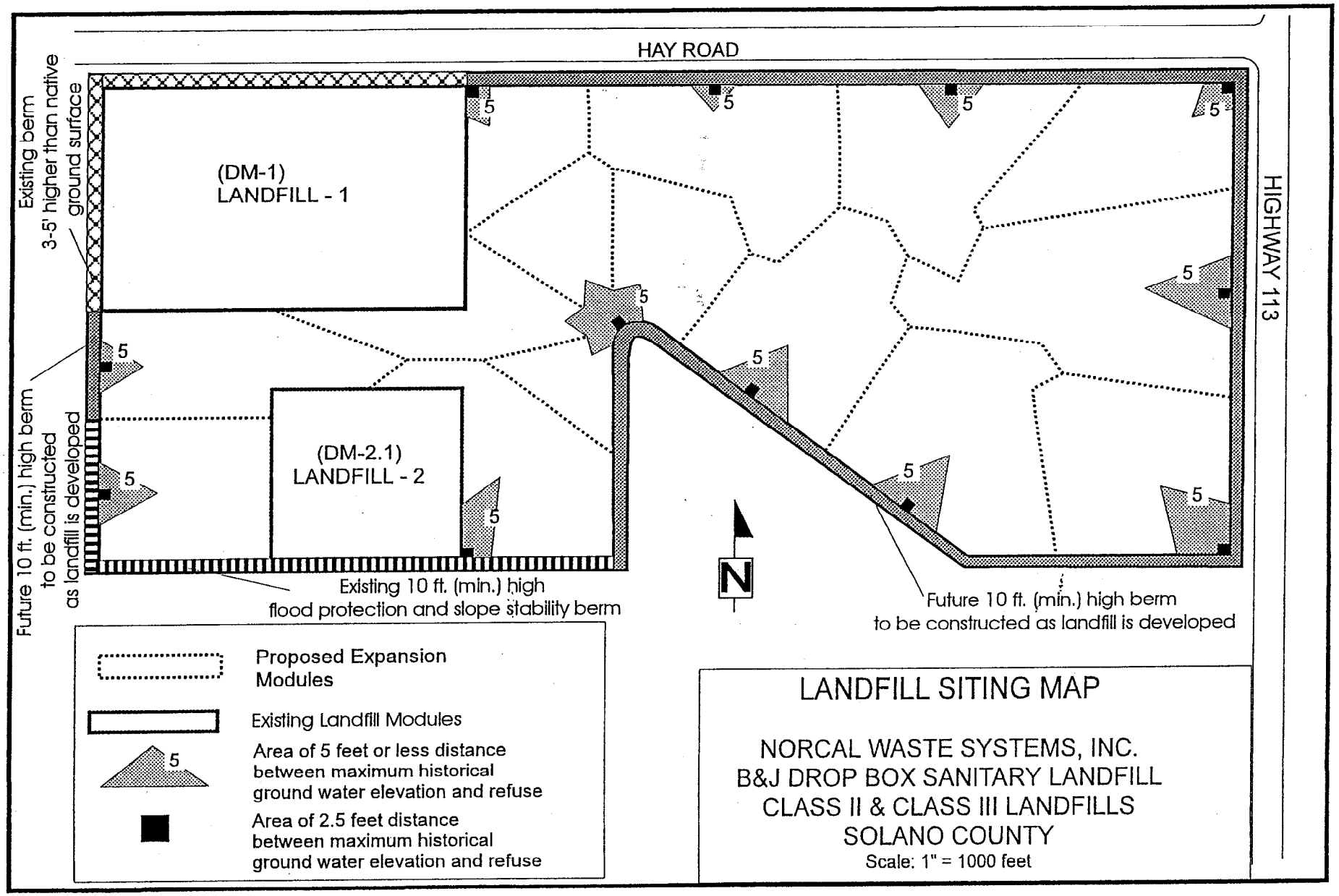
Not to Scale



ATTACHMENT B



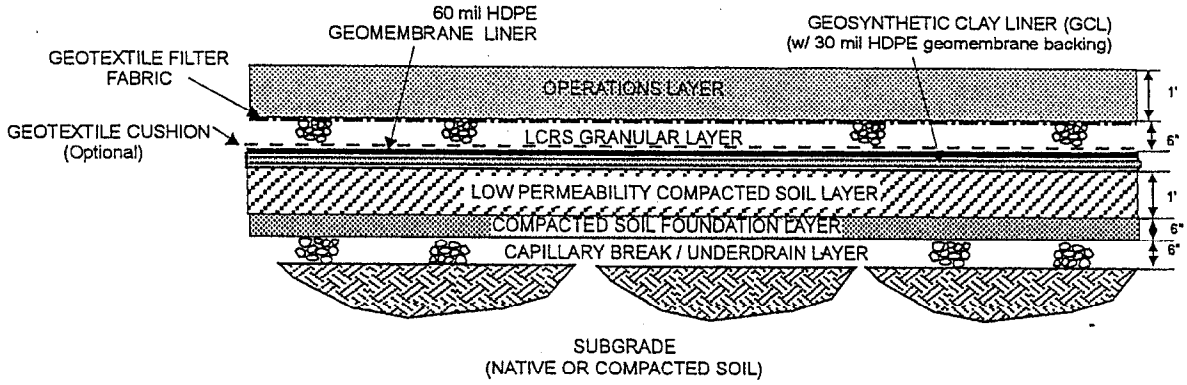
ATTACHMENT C



ATTACHMENT D

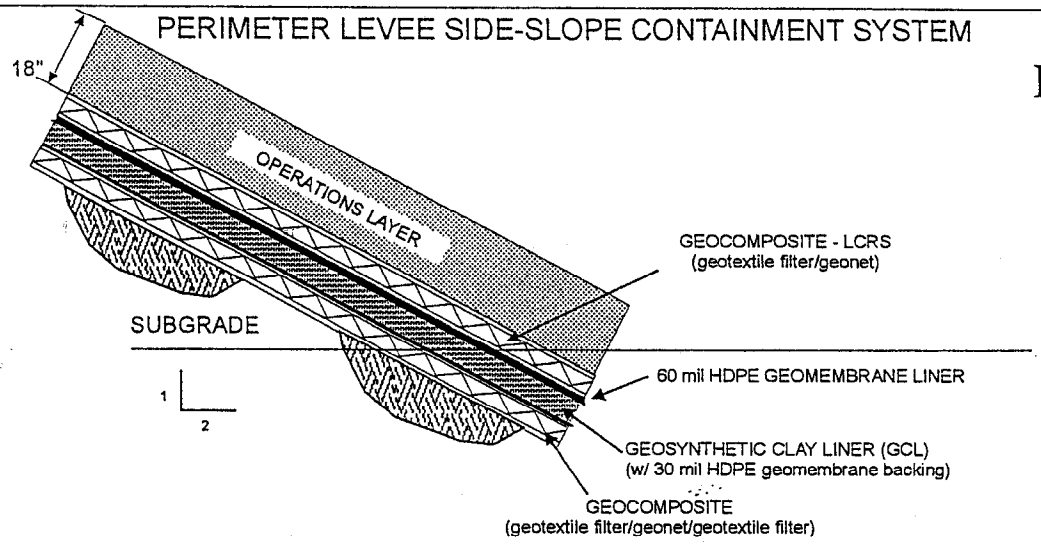
ENGINEERED ALTERNATIVE BASE LINER DESIGN FOR NEW CLASS II MODULES

I



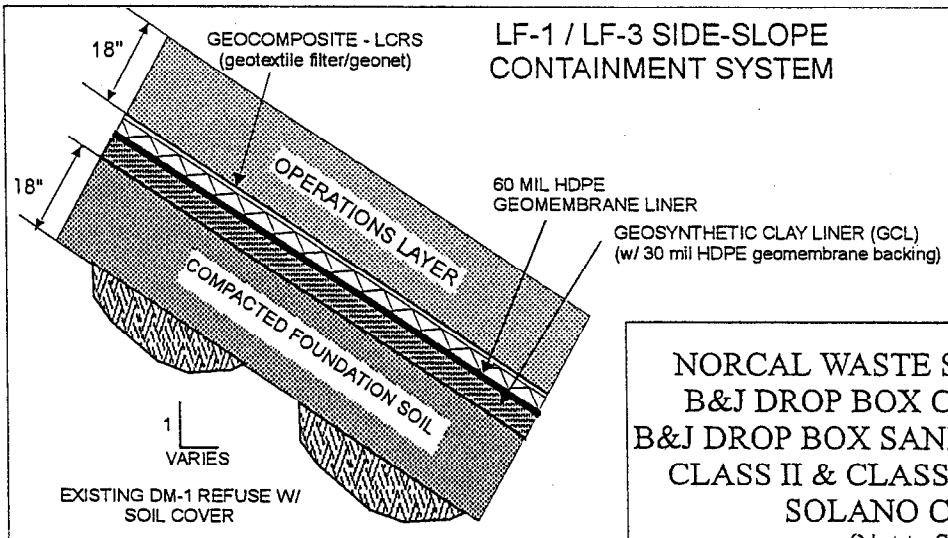
PERIMETER LEVEE SIDE-SLOPE CONTAINMENT SYSTEM

II

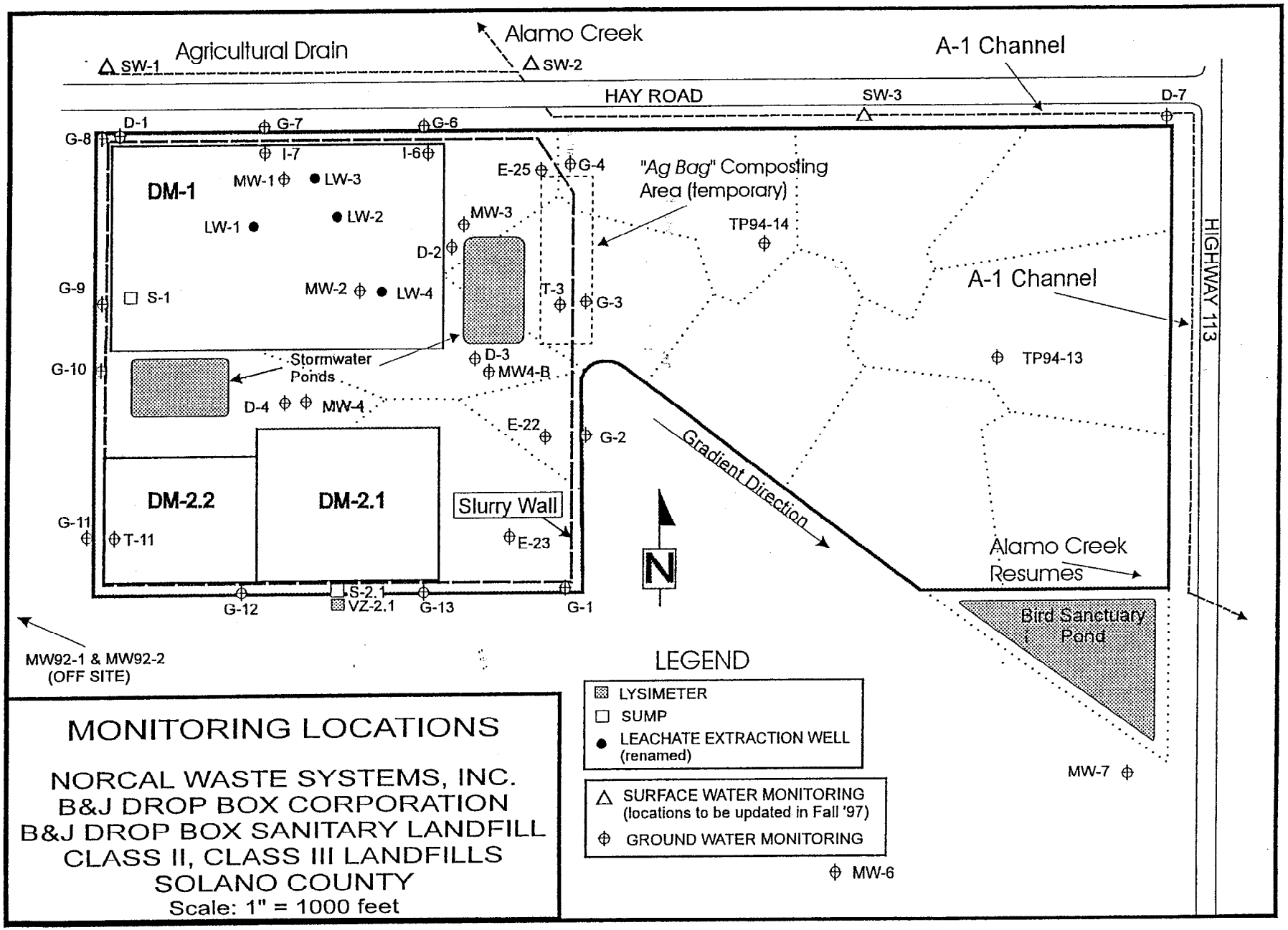


LF-1 / LF-3 SIDE-SLOPE CONTAINMENT SYSTEM

III



NORCAL WASTE SYSTEMS, INC.
B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II & CLASS III LANDFILLS
SOLANO COUNTY
(Not to Scale)



MONITORING LOCATIONS

NORCAL WASTE SYSTEMS, INC.
B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II, CLASS III LANDFILLS
SOLANO COUNTY
Scale: 1" = 1000 feet

ATTACHMENT F

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Specific Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC_{water} (by USEPA Method 8260):

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo3chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2Dichlorobenzene)
p-Dichlorobenzene (1,4Dichlorobenzene)
trans1,4-Dichloro2butene
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1Dichloroethene; Vinylidene chloride)
cis1,2-Dichloroethylene (cis1,2Dichloroethene)
trans1,2-Dichloroethylene (trans1,2Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
cis1,3-Dichloropropene
trans1,3-Dichloropropene
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Methyl bromide (Bromomethene)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK; 2Butanone)

B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II, CLASS III LANDFILLS
SOLANO COUNTY

Monitoring Parameters

Constituents in VOCwater (con't)

Methyl iodide (Iodomethane)

4-Methyl-2-pentanone (Methyl isobutylketone)

Styrene

1,1,1,2-Tetrachloroethane

1,1,2,2-Tetrachloroethane

Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)

Toluene

1,1,1-Trichloethane (Methylchloroform)

1,1,2-Trichloroethane

Trichloroethylene (Trichloroethene)

Trichlorofluoromethane (CFC-11)

1,2,3-Trichloropropane

Vinyl acetate

Vinyl chloride

Xylenes

Inorganics (by USEPA Method):

Aluminum	6010	Arsenic	7061
Antimony	6010	Mercury	7470
Barium	6010	Nickel	7520
Beryllium	6010	Selenium	7741
Cadmium	6010	Thallium	7841
Chromium	6010	Cyanide	9010
Chromium VI^+	7197	Sulfide	9030
Cobalt	6010		
Copper	6010		
Iron	6010		
Lead	7421		
Manganese	6010		
Silver	6010		
Tin	6010		
Vanadium	6010		
Zinc	6010		

Report all peaks identified by the EPA test methods. Ground water and leachate samples shall be analyzed and reported as dissolved. Surface water samples shall be analyzed and reported as total recoverable metals as specified in EPA-600/4-79-020 dated March 1993. Unsaturated zone water samples shall be analyzed and reported as totals.

Volatile Organics (USEPA Method 8260):

Acetone
Acetonitrile (Methyl cyanide) Acrolein
Acrylonitrile
Allyl chloride (3Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dichlobromomethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2Dibromo3chloropropane (DBCP)
1,2Dibromoethane (Ethylene dribromide; EDB)
oDichlorobenzene (1,2Dichlorobenzene)
mDichlorobenzene (1,3Dichlorobenzene)
pDichlorobenzene (1,4Dichlorobenzene)

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CLASS II, CLASS III LANDFILLS
SOLANO COUNTY

Constituents of Concern

trans1,4Dichloro2butene
Dichlorodifluoromethane (CFC 12)
1,1Dichloroethane (Ethylidene chloride)
1,2Dichloroethane (Ethylene dichloride)
1,1Dichloroethylene (1,1Dichloroethene; Vinylidene chloride)
cis1,2Dichloroethylene (cis1,2Dichloroethene)
trans1,2Dichloroethylene (trans1,2Dichloroethene)
1,2Dichloropropane (Propylene dichloride)
1,3Dichloropropane (Trimethylene dichloride)
2,2Dichloropropane (Isopropylidene chloride)
1,1 Dichloropropene
cisl ,3Dichloropropene
trans1,3Dichloropropene
Ethylbenzene
Hexachlorobutadiene
2Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Isodrin
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4Methyl2pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
1,1,1,2Tetrachloroethane
1,1,2,2Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4Trichlorobenzene
1,1,1Trichloroethane, Methylchloroform
1,1,2Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC11)
1,2,3Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semivolatile Organics
(USEPA Method 8270 base, neutral, & acid extractables):
Acenaphthene

B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II, CLASS III LANDFILLS
SOLANO COUNTY

Constituents of Concern

Acenaphthylene
Acetophenone
2Acetylaminofluorene (2AAF)
Aldrin
4Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
alphaBHC
betaBHC
deltaBHC
gammaBHC (Lindane)
Bis(2chloroethoxy)methane
Bis(2chloroethyl) ether (Dichloroethyl ether)
Bis(2chloro1methyethyl) ether (Bis(2chloroisopropyl) ether; DCIP)
Bis(2ethylhexyl) phthalate
4Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
pChloroaniline
Chlorobenzilate
pChloromcresol (4Chloro3methylphenol)
2Chloronaphthalene
2Chlorophenol
4Chlorophenyl phenyl ether
Chrysene oCresol (2methylphenol)
mCresol (3methylphenol)
pCresol (4methylphenol)
4,4'DDD
4,4'DDE
4,4'DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Dinbutyl phthalate
oDichlorobenzene (1,2Dichlorobenzene)
mDichlorobenzene (1,3Dichlorobenzene)
pDichlorobenzene (1,4Dichlorobenzene)
3,3'Dichlorobenzidine
2,4Dichlorophenol
2,6Dichlorophenol
Dieldrin
Diethyl phthalate

B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II, CLASS III LANDFILLS
SOLANO COUNTY

Constituents of Concern

p(Dimethylamino)azobenzene
7,12Dimethylbenz[a]anthracene
3,3'Dimethylbenzidine
2,4Dimehtylphenol (mXylenol)
Dimethyl phthalate
mDinitrobenzene
4,6Dinitroocresol (4,6Dinitro2methylphenol)
2,4Dinitrophenol
2,4Dinitrotoluene
2,6Dinitrotoluene
Dinoctyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methacrylate
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3Methylcholanthrene
Methyl methanesulfonate
2Methylnaphthalene
Naphthalene
1,4Naphthoquinone
1Naphthylamine
2Naphthylamine
oNitroaniline (2Nitroaniline)
mNitroaniline (3Nitroaniline)
pNitroaniline (4Nitroaniline)
Nitrobenzene
oNitrophenol (2Nitrophenol)

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pNitrophenol (4Nitrophenol)
NNitrosodinbutylamine (Dinbutylnitrosamine)
NNitrosodiethylamine (Diethylnitrosamine)
NNitrosodimethylamine (Dimethylnitrosamine)
NNitrosodiphenylamine (Diphenylnitrosamine)
NNitrosodipropylamine (NNitrosoNdipropylamine; Dinpropylnitrosamine)
NNitrosomethylethylamine (Methylethylnitrosamine)
NNitrosopiperidine
NNitrosospyrrolidine
5Nitrootoluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
pPhenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5Tetrachlorobenzene
2,3,4,6Tetrachlorophenol
oToluidine
Toxaphene
1,2,4Trichlorobenzene
2,4,5Trichlorophenol
2,4,6Trichlorophenol
0,0,0Triethyl phosphorothioate
symTrinitrobenzene

Organophosphorus Compounds (USEPA Method 8141):
0,0Diethyl 02pyrazinyl phosphorothioate (Thionazin)
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate

Chlorinated Herbicides (USEPA Method 8150):
2,4D (2,4Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2secButyl4,6dinitrophenol)
Silvex (2,4,5Trichlorophenoxypropionic acid; 2,4,5TP)
2,4,5T (2,4,5Trichlorophenoxyacetic acid)

B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
CLASS II, CLASS III LANDFILLS
SOLANO COUNTY

Constituents of Concern

INFORMATION SHEET

NORCAL WASTE SYSTEMS, INC.
B&J DROP BOX CORPORATION
B&J DROP BOX SANITARY LANDFILL
SOLANO COUNTY

The B&J Drop Box Corporation, a subsidiary of Norcal Waste Systems, Inc. owns and operates the B&J Drop Box Sanitary Landfill in Solano County. The site comprises approximately 640 acres and is about eight miles east of Vacaville. The facility consists of two Class III landfills (LFs 1 and 2), and one Class II landfill (LF-3). LFs 1 and 2 are older landfills having only one disposal module. Landfill LF-3, an expansion of the facility approved in Board Order 95-202, consists of one existing Class II module (DM-2.2) and 14 planned Class II expansion modules (DMs-3 through 16) yet to be constructed. These requirements incorporate revisions to the engineered alternative designs previously approved for the base and side-slopes of the remaining expansion modules of LF-3.

The original base liner and side slope design included a one-foot layer of gravel for a leachate collection and recovery system (LCRS), and a composite liner consisting of a geomembrane in combination with a geosynthetic clay liner (GCL). This base liner and side slope design was approved as an engineered alternative to the prescriptive requirements of Chapter 15 and Subtitle D for a base liner, and was incorporated into existing Class II module DM-2.2. The original module design also included a one-foot layer of gravel below the foundation layer of the base liner to serve as a capillary break due to the high water table. The capillary break, also incorporated into DM-2.2, was approved as an engineered alternative to the siting requirements of Chapter 15, which require five feet of separation between wastes and ground water. The modules do not meet the prescriptive standard due to the high ground water at the site.

For the remaining modules, the changes include a reduction in the LCRS and capillary layer thicknesses from one foot to six inches, and elimination of the composite liner for the side-slopes of those new Class II modules which will overlie already lined portions of Landfill 2. Instead of a composite liner, these side slopes will include a geomembrane along with six inches of prepared subgrade. The side-slopes of modules along the perimeter levees, however, will retain the composite liner. The LCRS and capillary break in the perimeter levee modules will consist of geocomposite (geotextile filter/geonet/drainage geonet) material instead of a gravel.

These requirements also allow the limited use of leachate for dust control purposes and a reduction in ground water elevation monitoring. A schedule is also include which requires the Discharger to submit a Detection Monitoring plan for each new and existing landfill.

The site is in the Putah plain, which is drained by natural and man-made water courses. The nearest surface water is the Alamo Creek A-1 Channel, an agricultural drainage canal which runs by the north and east sides of the site, draining into Ulatis Creek, Cache Slough and the Sacramento River Delta. There is also a bird sanctuary in the southeast corner of the site which drains to the A-1 Channel.

JDM:dlk/20 June 1997